Bats Matter!

Bats are an essential, beneficial part of our ecosystem. The death of our crucial bat populations will cause a considerable ecological ripple effect, with potentially far-reaching consequences.

Bats play critical roles in insect control, plant pollination, seed dissemination, and cave ecosystems. They are also food for other animals, including hawks, raccoons, skunks, and owls.

© Merlin D. Tuttle, Bat Conservation International

Consuming over half their body weight in insects each night, bats are the major predator of night-flying insects. Bats in the U.S. eat **thousands of tons of insects nightly!** The loss of our bats could lead to an increase in insect pests, resulting in damage to crops and forests, and an increase in pesticide applications.

Cave-roosting bats are a keystone species, because bat guano provides vital nutrients for cave ecosystems, and is often the basis of a cave's food chain. Bat guano is used by micro-organisms and invertebrates, which become food for fish, salamanders, frogs, and other larger animals.

Bats also play a significant role in science and medicine. Research conducted on bats has enabled advancements in sonar, vaccine development, blood coagulation, artificial insemination, and more.

WNS not only affects bats --
It impacts entire ecosystems.
WNS affects *us.*

Research is Critical

Scientists, private and university laboratories, wildlife officials, and nonprofit organizations have partnered to develop research and management strategies to combat WNS. Numerous field and laboratory projects are underway as scientists urgently try to discover the cause of WNS and how to fight it.

Your Help is Needed!

- Please honor cave closures. Check with your state conservation department or a local chapter of the National Speleological Society for the status of caves and caving in your area.
- Follow the protocols recommended by the U.S. Fish and Wildlife Service to decontaminate clothes and equipment used in caves or mines.
- Stay out of caves where bats are hibernating.
- Report bats exhibiting signs of WNS, and bats that are dead, dying, or appear diseased, to your state wildlife agency.
- Help spread the word about WNS and the value of bats.

More Information

For more information on WNS, including decontamination procedures, visit the U.S. Fish and Wildlife Service Web site:

www.fws.gov/whitenosesyndrome

For more information on bats and caves, visit:

- Bat Conservation International: www.batcon.org
- National Speleological Society: www.caves.org

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Battle for Bats

The WNS Tragedy

White-Nose Syndrome (WNS) is responsible for the catastrophic death of hibernating bats in the United States and Canada. This previously unknown disease has spread very quickly since it was first discovered, and it poses a considerable threat to millions of bats, entire ecosystems, and even to you.

White-Nose Syndrome

A new disease is killing entire populations of bats in the U.S. and Canada as they hibernate in caves and mines. Affected bats are frequently waking up and flying during hibernation, using up the fat reserves they rely on for winter survival. Scientists estimate well **over a million bats** have already died.

The earliest evidence of White-Nose Syndrome (WNS) was in a 2006 photograph taken in rarely visited Howes Cave, New York. However, the condition wasn't recognized until a year later, after hundreds of bats were found dead in four nearby caves.

Bats with WNS or its associated fungus have been found from New Hampshire to Virginia and west to Oklahoma, as well as in Ontario and Quebec. Scientists believe WNS is responsible for the most dramatic decline of North American wildlife in 100 years, with potentially dire environmental consequences. It threatens ecosystems both in caves and aboveground, and presents new challenges for conserving fragile cave environments.

Alarming Death Rate

The impact of WNS is frightening! Up to 99% of bats in WNS-infected populations die within a few years. Little Brown bats, our most common species, have the highest mortalities: **over 90% die the first year** after contracting the disease. More than half of the 45 species of bats that live in the U.S., including four endangered species, hibernate in caves and mines to survive the winter. Three of the endangered species (Indiana, Gray, and Virginia Big-eared bats) live within or near WNS-affected areas, and hibernate in caves already infected with WNS.

Other Signs

The white powdery fungus isn't always apparent on affected bats. Sometimes bats with WNS simply display usual behavior such as flying outside during the day in near-freezing weather. This quickly uses up their fat reserves when insects are not available for food. You may also see dead or dying bats on the ground, buildings, or other structures during the winter. These bats may look emaciated.

How WNS is Spread

Bat-to-Bat: WNS has spread to caves and mines in a pattern that indicates the fungus primarily is transmitted from bat to bat. Additionally, bat-to-bat infection has been proven in a laboratory.

Other Means: Scientists believe that it may be possible for humans to inadvertently carry *G. destructans* spores on their apparel or equipment.

If the spread of WNS is not slowed or halted, we face the real possibility of losing entire bat species.

The Cause of WNS

This affliction was named "White-Nose Syndrome" because of the telltale white fuzzy growth on the nose, ears, and wing membranes of affected bats. Scientists identified a previously unknown species of cold-loving fungus, *Geomyces destructans*, as the cause of the skin infections. *G. destructans* thrives in low temperatures (40–55° F) and high humidity–conditions commonly found in caves and mines where bats hibernate.

While evidence indicates that *G. destructans* is likely causing the deaths of infected bats, the exact process is unknown. Scientists are working to determine if there are conditions that increase a bat's susceptibility to WNS and/or death.

As a precaution, clothing and gear used in a WNS-affected site should be decontaminated according to the U.S. Fish and Wildlife Service protocols. **It is particularly important for cave visitors not to take clothing and gear used in a WNS site to caves or mines outside a WNS-affected area.**

For more information on WNS, visit the U.S. Fish and Wildlife Web site: www.fws.gov/whitenosesyndrome